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Abstract:

Putter-Heads

A putter-head (1) giving positive ball-topspin (S) for impact-heights (h_i) above 5 mm from its sole (6), has its center of mass (9) located p mm behind its impact face (8) at height h_c mm above the sole (6), a mass M kgm and a radius of gyration K mm about the heel-toe axis (4-5) through the center of mass (9). The loft (α) of the impact face (8) increases monotonically with height from 5 to 15 mm above the sole (6), where (K^2/p) is greater than 5 mm and $S = S_G + S_L$ where S_G and S_L are percentage spin rates based on:

$$S_G = (250 \times h) / [(3.2 + 70 \times M) \times (K^2/p) + p]$$

$$S_L = (-0.76 \times \alpha_i) / [1 + 0.04 \times (p/K)^2]$$

for which: $h = h_i - h_c - p \times \sin(\alpha_i)$

and α_i degrees is impact-face loft at height h_i.

From the sole (6) upwards, the impact face curves (16) from negative- to positive-loft and merges into an upper flat-portion (15) of positive loft. Alternatively, it has upper and lower flat-portions (21, 22) of positive- and negative-loft respectively. A hosel (30,31) gives high compliance at impact for head-rotation relative to the shaft (33) about the heel-toe axis (4-5), and allows choice of lie in shaft-attachment.